

RCRA FACILITY INVESTIGATION DATA GAP INVESTIGATION

**DATA REPORT: GROUNDWATER
SAMPLING AT THE FORMER BULK
CHEMICAL STORAGE AREA
JOHN F. QUEENY PLANT
ST. LOUIS, MISSOURI**



501886



RCRA

A025

Prepared for
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TABLE OF CONTENTS

SECTION 1	INTRODUCTION	1-1
SECTION 2	GROUNDWATER SAMPLING PROCEDURES.....	2-1
SECTION 3	FIELD INVESTIGATION AND LABORATORY RESULTS	3-1

List of Tables

- Table 1 Monitoring Well Completion Summary and Groundwater Elevations
Table 2 Summary of Groundwater Analytical Detections
Table 3 Analytical Results Qualifier Definitions

List of Figures

- Figure 1 Monitoring Well Location Map

List of Appendices

- Appendix A Monitoring Well Development and Groundwater Sampling Sheets
Appendix B Investigation Derived Waste Analytical Results
Appendix C Groundwater Analytical Data (Laboratory Sheets)

This report presents the results of groundwater sampling conducted at the former Bulk Chemical Storage Area. These data are supplemental to, and were collected in conjunction with the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Data Gap Investigation that Solutia Inc. (Solutia) is performing at its John F. Queeny Plant (Queeny Plant) in St. Louis, Missouri. The data were collected at the request of Solutia.

This work was conducted in accordance with the approved Data Gap Work Plan (September 24, 1999) (including project Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP)), and approved modifications and amendments. URS Corporation (URS) conducted the fieldwork on September 21 and 22, 2001.

SECTION TWO

Groundwater Sampling Procedures

The project work was performed by URS under the direction of Solutia. The supplemental field activities were conducted in accordance with the Data Gap work plan, Health and Safety Plan (HASP) and approved amendments and modifications. The field work was conducted in USEPA Modified Level D personal protective equipment (PPE). Health and safety related information was primarily recorded in field logbooks or on the well development sheets.

A total of 7 monitoring wells (MW-24A, -24B, -25A, -25B, VW-1, VW-2 and VW-2B) were developed and sampled during this investigation. The locations of the wells and piezometers of the former Bulk Chemical Storage Area are illustrated on **Figure 1**.

Prior to sampling, groundwater elevations were measured to the nearest 1/100 ft and the potential presence of separate phase product was evaluated at each monitoring well using an electronic interface probe. In addition, the total depth of the monitoring wells was gauged and compared to historic depths. The groundwater elevations, screened intervals, and monitoring well information are summarized in **Table 1**.

The monitoring wells were developed using either a polyethylene bailer or Enviro-Tech's "Purger Pump" and polyethylene tubing. Each monitoring well was developed until the temperature, specific conductance, and pH readings stabilized over a minimum of two successive well volumes and a minimum of three well volumes had been removed. The criteria used to determine stabilization is provided below:

- ± 0.25 units for pH
- $\pm 10\%$ for specific conductance
- $\pm 1^\circ \text{C}$ for Temperature.

Well development sheets are included in **Appendix A**.

Groundwater samples were collected using disposable, polyethylene bailers and personnel conducting the groundwater sampling wore clean disposable protective gloves. The bailers were attached to a new poly-rope and lowered slowly into the well to minimize agitation of the standing water. Samples were transferred from the bailer to the sample containers in a manner that minimized agitation and aeration. The sample from monitoring well MW-24A was bottom-filled to insure that the sample was segregated from the light non-aqueous phase liquid (LNAPL) that was present. The containers were labeled with a sample identification number, site name, sampler's initials, date and time of sample collection, preservative, and the parameters to be analyzed. After sample collection, the samples were logged on a COC form, packaged to

SECTION TWO

Groundwater Sampling Procedures

prevent damage during shipment, and placed in an iced cooler. Field parameters were measured after each well volume and at the time of sampling and are shown on the monitoring development sheets (**Appendix A**). Quality assurance samples in the form of a duplicate, trip blank, matrix spike, and a matrix spike duplicate were also collected.

Non-disposable purging and sampling equipment was decontaminated between each sample acquisition by washing with an Alconox® detergent wash, a potable water rinse, and a distilled water rinse.

Investigation derived waste (IDW) from the sampling activities were managed in accordance with Solutia standard operating procedures for the Queeny Plant. Both decontamination and purge water were transferred to a 500-gallon polyethylene tank that was staged onsite. As previously requested by the Metropolitan Sewer District (MSD), a composite sample of the water (designated Batch 8) was analyzed for VOCs, selected metals (arsenic, barium, copper, lead, zinc), amenable cyanide, PCBs and alachlor by Severn Trent Laboratories, Inc. St. Louis, Missouri (STL) facility. Copies of the laboratory analytical results are included in **Appendix B**.

On November 29, 2001 Solutia submitted to MSD, the IDW analytical results along with a request for an extension of the Special Discharge Application that was originally approved in a letter dated July 3, 2000.

The contents of Batch 8 and the results of MSD's review are shown in the table below.

Batch Number	Contents	Results
8	Decontamination water and purge water from wells: MW-24A, -24B, -25A, -25B, VW-1, VW-2 and VW-2B	Approved for discharge

MSD approved Batch 8 on November 29, 2001, and the water associated with this batch was discharged at a controlled rate to the facility sewer at monitoring point 003 on November 30, 2001.

SECTION THREE

Field Investigation and Laboratory Results

The investigative water samples collected during the supplemental activities were submitted to STL, Inc. in Savannah, Georgia for testing. The analytical procedures conformed to the methods and procedures specified in the Quality Assurance Project Plan (QAPP) for the Data Gap Investigation. The groundwater samples were analyzed for VOCs by Method 8260. Laboratory data from STL were provided in electronic and hard copy form. The supplemental analytical data were electronically loaded into the Microsoft Access® database created for the Data Gap Investigation.

The analytical data were independently validated by URS as outlined in the QAPP. The validation procedure used was consistent with the USEPA guidelines for the validation of laboratory data (USEPA, 1993 and 1994). Revisions to the database were made after URS completed data validation. Data qualifiers were written on the hard copies of the data and were manually entered into the database. Results were acceptable (no qualifications, or J or UJ qualifiers) for 100 percent of the data; no data were rejected.

The analytes detected in the groundwater samples collected during this investigation are summarized in **Table 2**. The results are presented by hydrostratigraphic unit (i.e., fill and silty clay, sand). Refer to **Table 3** for definitions of data qualifiers. Laboratory data sheets for this sampling are included in **Appendix C**.

The data will become part of the on-going database for evaluating the groundwater at this SWMU.

Tables

TABLE 1
MONITORING WELL COMPLETION SUMMARY AND GROUNDWATER ELEVATIONS

Monitoring Well Identification	Top of Casing Elevation (ft MSL)	Total Well Depth (ft btoc)	Bottom of Well Elevation (ft MSL)	Screened Interval (ft btoc)	Screened Interval Elevation (ft MSL)	Depth to Water (ft btoc)	Water Elevation (ft MSL)	Comments
Fill and Silty Clay Wells								
MW-24A	420.80	28.10	392.70	(18.13-28.13)	(402.67-392.67)	24.97	395.83	LNAPL (24.97-25.06 BTOC)
MW-25A	419.90	29.71	390.19	(19.97-29.97)	(399.93-389.93)	27.83	392.07	
VW-1	419.12	16.15	402.97	(6.00-16.00)	(413.12-403.12)	9.91	409.21	
VW-2	419.17	13.18	405.99	(6.00-16.00)	(413.17-403.17)	10.38	408.79	
Sand Wells								
MW-24B	420.84	45.60	375.24	(34.56-44.56)	(386.28-376.28)	38.97	381.87	
MW-25B	419.99	47.25	372.74	(37.70-47.70)	(382.29-372.89)	36.47	383.52	
VW-2B	419.55	76.81	342.74	(67.30-77.30)	(352.25-342.25)	36.72	382.83	

Notes:

- 1.) MSL=Mean Sea Level
- 2.) btoc= below top of casing
- 3.) The wells were gauged on September 20th and 21st, 2001.

Note: Refer to Table 3 for qualifier definitions.

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DETECTIONS

Sample ID	Sample Date	Method	Analyte	Result	Units	Lab Q	URS Q
Fill and Silty Clay Wells							
MW-24A	09/20/01	8260	Benzene	18000	ug/l		
MW-24A	09/20/01	8260	Chlorobenzene	17000	ug/l		
MW-24A	09/20/01	8260	Ethylbenzene	1400	ug/l		
MW-24A	09/20/01	8260	Xylene (Total)	4500	ug/l		
MW-25A	09/21/01	8260	Benzene	300	ug/l		
MW-25A	09/21/01	8260	Chlorobenzene	3400	ug/l		
MW-25A	09/21/01	8260	Ethylbenzene	25	ug/l	J	
MW-25A	09/21/01	8260	Toluene	30	ug/l	J	
MW-25A	09/21/01	8260	Xylene (Total)	66	ug/l	J	
VW-1	09/20/01	8260	Benzene	16000	ug/l		
VW-1	09/20/01	8260	Chlorobenzene	3400	ug/l		
VW-2	09/21/01	8260	Benzene	100	ug/l		
VW-2	09/21/01	8260	Chlorobenzene	920	ug/l	D	
Sands Wells							
MW-24B	09/20/01	8260	Benzene	7800	ug/l		
MW-24B	09/20/01	8260	Chlorobenzene	160000	ug/l	D	
MW-24B	09/20/01	8260	Ethylbenzene	220	ug/l	J	
MW-24B	09/20/01	8260	Toluene	1200	ug/l		
MW-24B	09/20/01	8260	Xylene (Total)	490	ug/l	J	
MW-24B (DUP)	09/20/01	8260	Benzene	8100	ug/l		
MW-24B (DUP)	09/20/01	8260	Chlorobenzene	160000	ug/l		
MW-24B (DUP)	09/20/01	8260	Methylene chloride	710	ug/l	J	
MW-24B (DUP)	09/20/01	8260	Toluene	1900	ug/l	J	
MW-25B	09/21/01	8260	Acetone	13	ug/l	J	
MW-25B	09/21/01	8260	Benzene	35	ug/l		
MW-25B	09/21/01	8260	Chlorobenzene	240	ug/l	D	
MW-25B	09/21/01	8260	1,2-Dichloroethene (Total)	20	ug/l		
MW-25B	09/21/01	8260	Ethylbenzene	9.4	ug/l		
MW-25B	09/21/01	8260	Toluene	1.6	ug/l	J	
MW-25B	09/21/01	8260	Vinyl chloride	12	ug/l		
VW-2B	09/20/01	8260	Benzene	2.8	ug/l	J	
VW-2B	09/20/01	8260	Chlorobenzene	170	ug/l		
VW-2B	09/20/01	8270	Chloromethane	4.5	ug/l	J	
VW-2B	09/20/01	8260	1,2-Dichloroethene (Total)	230	ug/l		
VW-2B	09/20/01	8260	Toluene	1.4	ug/l	J	
VW-2B	09/20/01	8260	Vinyl chloride	34	ug/l		

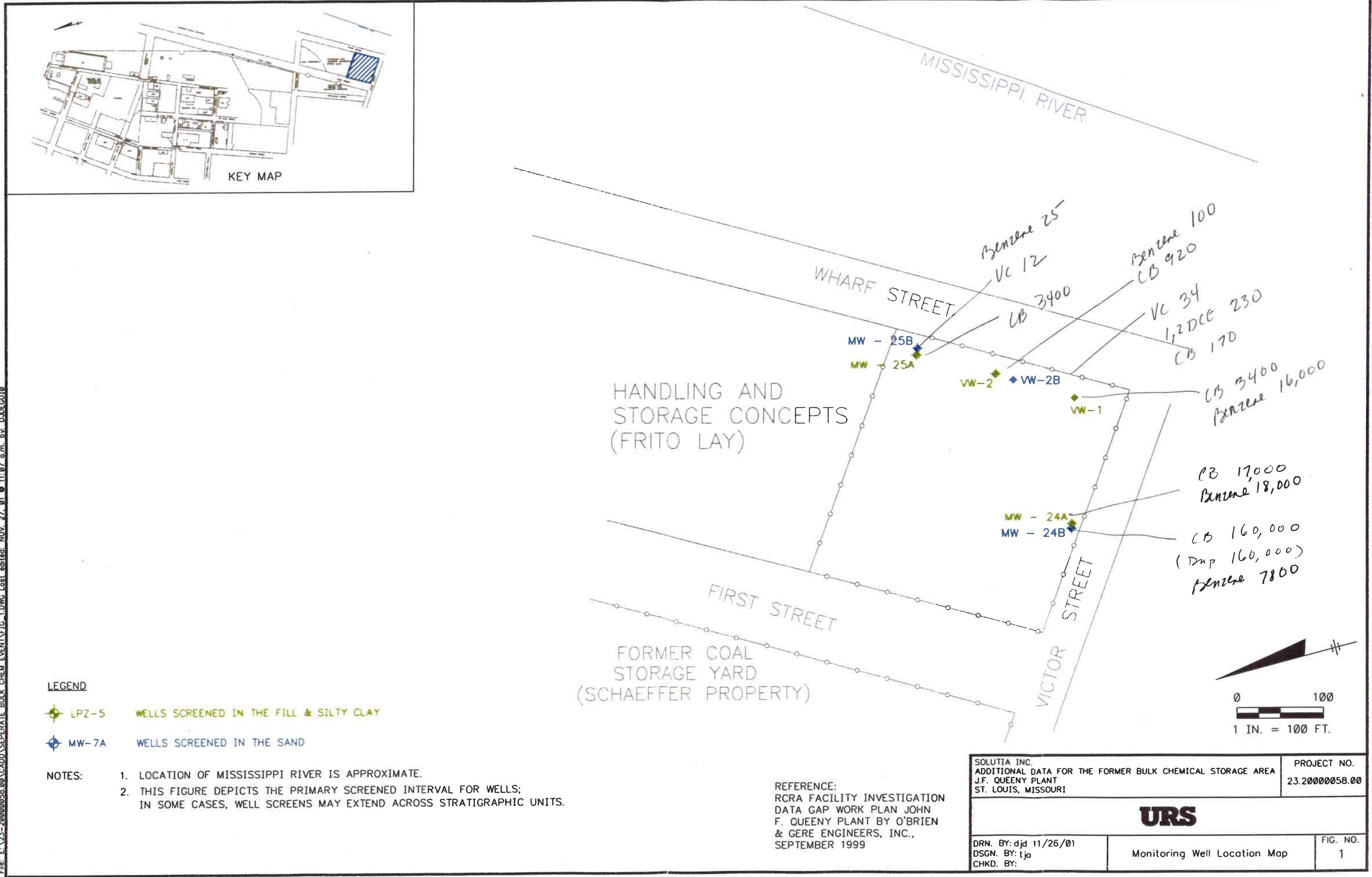
TABLE 3
ANALYTICAL RESULTS QUALIFIER DEFINITIONS

URS QUALIFIERS	
QUALIFIER	DEFINITIONS ¹
U	The analyte was analyzed for, but was not detected above the level of the associated value. The associate value is either the sample quantitation limit or the sample detection limit.
J	The associated value is an estimated quantity
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	Presumptive evidence of presence. Analyte may or may not be present.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
LABORATORY QUALIFIERS	
QUALIFIER	INORGANIC QUALIFIER DEFINITIONS
B	This flag indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
E	This flag indicates the reported value is estimated because of the presence of interference.
M	This flag indicates that duplicate injection precision was not met.
N	This flag indicates that spiked sample recovery is not within control limits.
S	This flag indicates that the reported value was determined by the Method of Standard Additions (MSA).
U	This flag indicates the analyte was analyzed for but was not detected.
*	This flag indicates that duplicate analysis is not within control limits.
+	This flag indicates the correlation coefficient for the MSA is less than 0.995.
QUALIFIER	ORGANIC QUALIFIER DEFINITIONS
B	This flag is used when the analyte if found in the associated method blank as well as in the sample.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.
D	If a sample or extract is reanalyzed at a higher dilution factor, the DL suffix is appended to the sample number of the Form I for the more diluted sample, and all reported concentrations on that Form I are flagged with the D flag.
E	This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
J	This flag indicates an estimated value. This flag is used (1) when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the results is less than the CRQL but greater than zero, and (3) when the retention time data indicate the presence of a compound that meets the pesticide/Aroclor identification criteria, and the result is less than the CRQL but greater than zero.
N	This flag indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search.
P	This flag is used for pesticide/Aroclor target analyte when there is greater than 35% difference for detected concentrations between the two GC columns.
U	This flag indicates the compound was analyzed for but not detected.
X	Laboratory defined flag.

¹ USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994.

Figures

URS



APPENDIX A

Monitoring Well Development and Groundwater Sampling Sheets

URS CORPORATION
GROUNDWATER SAMPLE COLLECTION FIELD SHEET

Site Name: Solutia Queeny RFI

Sample ID: MW-24A

Date/Time Collected: 9/20/01 1200

Sampling Method: Disposable 3" poly bagger

Project No: 23-20000058.00

Well Location: Ft. Bulk Chem. St. Area

Depth to water (from top of casing): 24.92 ft - to developed

ample Split? (Circle one)

Yes

No

Duplicate Sample (Circle one)

Yes

No

Matrix Spike/Matrix Spike Duplicate (Circle one)

Yes

No

Duplicate ID: _____

MS/MSD ID: _____

Sample Collected	Sample Container	Preservative	Analysis Required
✓	(3) 40ml VOA	HCL	VOCs (Method 8260)
	(2) 1-L amber		SVOCs (Method 8270)
	(2) 1-L amber		Pesticides (Method 8141)
	(2) 1-L amber		PCBs (Method 8082)
	(1) 250 ml polyethylene (for filtered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene (for unfiltered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene	NAOH	Cyanide (Method 9012)
	(1) 250 ml polyethylene		Alkalinity, CL, SO ₄ , NO ₃ (Method 310.1, 300.0)
	(1) 500 ml polyethylene	Zinc acetate	Sulfide (Method 9034)
	(1) 250 ml polyethylene (filtered)		Fe(II) (ASTM 3500)
	(3) 40ml VOA		Methane/Ethane/Ethene
	(1) 125 ml amber	HCL	TOC (Method 9060)

eadspace Screening (Circle one) Yes

No

Reading: _____

D/FID type: _____

See log book & well purging sheets.

Comments: _____

Samplers: Bittman / Adams

Signatures: Robert Bittman

URS CORPORATION
GROUNDWATER SAMPLE COLLECTION FIELD SHEET

Name: Solutia Queeny RFI
 Sample ID: MW-24B
 Date/Time Collected: 9/20/01 1140
 Sampling Method: Disposable Poly bag

Project No: 23-20000058.00

Well Location: Fc Bulk chem, St. Area

Depth to water (from top of casing): _____

Sample Split? (Circle one) Yes No
 Duplicate Sample (Circle one) Yes No
 Matrix Spike/Matrix Spike Duplicate (Circle one) Yes No

Duplicate ID: MW-24B Dup

MS/MSD ID: _____

Sample Collected	Sample Container	Preservative	Analysis Required
	(3) 40ml VOA	HCL	VOCs (Method 8260)
	(2) 1-L amber		SVOCs (Method 8270)
	(2) 1-L amber		Pesticides (Method 8141)
	(2) 1-L amber		PCBs (Method 8082)
	(1) 250 ml polyethylene (for filtered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene (for unfiltered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene	NAOH	Cyanide (Method 9012)
	(1) 250 ml polyethylene		Alkalinity, CL, SO ₄ , NO ₃ (Method 310.1, 300.0)
	(1) 500 ml polyethylene	Zinc acetate	Sulfide (Method 9034)
	(1) 250 ml polyethylene (filtered)		Fe(II) (ASTM 3500)
	(3) 40ml VOA		Methane/Ethane/Ethene
	(1) 125 ml amber	HCL	TOC (Method 9060)

Airspace Screening (Circle one) Yes No

Reading: _____

FID type: see log book & well purging sheets

Comments: _____

Samplers: Bilimay | Adams

Signatures: Robert Bilimay

GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: Solutia Queeny BFT (DATA GAP) PROJECT NUMBER: 23-20000058-00
DATE: 9-21-01 WEATHER: Sunny high 70's
FIELD PERSONNEL: T. Jeff Adams, T. L. Schmit
MONITORING WELL ID: MW-25A

INITIAL DATA

Well Diameter 4 in.
 Total Depth of Well: 70.71 ft
 Depth to Water: 27.72 ft
 Height of water Column: 43.00 ft
 Gallons/Lin. Ft³: 0.1055
 Vol. of Water Column: 1.28 gallons
 Min. Purge Volume: 3.84 gallons (3 volumes)
 Depth to Top of Screen — ft.
 Ambient PID/FID Reading: 0 ppm
 Wellbore PID/FID Reading: 0.4 ppm
 LNAPL / DNAPL — ft

¹ 0.163 gallons/ft for 2-inch well, 0.653 gallons/ft for 4-inch well

PURGE DATA

Purge Method: Whole Gromp / 3" desorbable Beaker

Start Time: 1315 Purge Stop Time: 1525 Elapsed Time: 125 Mins. Total Volume Purged 3.5 Gals.

Average Purge Rate (gallons/min): _____ Well Volumes Purged: _____

Water Quality Meter ID: _____ Calibrated on: _____

SAMPLING DATA

Sampling method:

Sample Date: 9-21-01 Sample Time: 1045

Analysis: VDCs 826D

COMMENTS:

Did not collect water quality parameters due to low volume in well. Return to well at later time for sample after it has recharged.

Water very turbid - a lot of sediment

URS CORPORATION
GROUNDWATER SAMPLE COLLECTION FIELD SHEET

Sample Name: Solutia Queeny RFI Project No: 23-20000058.00
 Sample ID: MW-25A Well Location: MW-25A
 Date/Time Collected: 9-21-01 1045 Depth to water (from top of casing): 27.83'
 Sampling Method: Hand Bail

Sample Split? (Circle one) Yes No
 Duplicate Sample (Circle one) Yes No
 Matrix Spike/Matrix Spike Duplicate (Circle one) Yes No

Duplicate ID: _____
 MS/MSD ID: _____

Sample Collected	Sample Container	Preservative	Analysis Required
X	(3) 40ml VOA	HCL	VOCs (Method 8260)
	(2) 1-L amber		SVOCs (Method 8270)
	(2) 1-L amber		Pesticides (Method 8141)
	(2) 1-L amber		PCBs (Method 8082)
	(1) 250 ml polyethylene (for filtered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene (for unfiltered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene	NAOH	Cyanide (Method 9012)
	(1) 250 ml polyethylene		Alkalinity, CL, SO ₄ , NO ₃ (Method 310.1, 300.0)
	(1) 500 ml polyethylene	Zinc acetate	Sulfide (Method 9034)
	(1) 250 ml polyethylene (filtered)		Fe(II) (ASTM 3500)
	(3) 40ml VOA		Methane/Ethane/Ethene
	(1) 125 ml amber	HCL	TOC (Method 9060)

adspace Screening (Circle one) Yes No Reading: 6.4 ppm

G/FID type: _____

Comments: _____

Approvers: J Adams / S Schwartz

Natures: J Adams

URS CORPORATION
GROUNDWATER SAMPLE COLLECTION FIELD SHEET

Site Name: Solutia Queeny RFI
 Sample ID: MW-25B
 Date/Time Collected: 9-21-01 14:15
 Sampling Method: Hand Bail

Project No: 23-20000058.00
 Well Location: MW-25B
 Depth to water (from top of casing): 30.47'

Sample Split? (Circle one)

Yes

No

Yes

No

Yes

No

Duplicate ID: _____

MS/MSD ID: _____

Matrix Spike/Matrix Spike Duplicate (Circle one)

Sample Collected	Sample Container	Preservative	Analysis Required
X	(3) 40ml VOA	HCL	VOCs (Method 8260)
	(2) 1-L amber		SVOCS (Method 8270)
	(2) 1-L amber		Pesticides (Method 8141)
	(2) 1-L amber		PCBs (Method 8082)
	(1) 250 ml polyethylene (for filtered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene (for unfiltered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene	NAOH	Cyanide (Method 9012)
	(1) 250 ml polyethylene		Alkalinity, CL, SO ₄ , NO ₃ (Method 310.1, 300.0)
	(1) 500 ml polyethylene	Zinc acetate	Sulfide (Method 9034)
	(1) 250 ml polyethylene (filtered)		Fe(II) (ASTM 3500)
	(3) 40ml VOA		Methane/Ethane/Ethene
	(1) 125 ml amber	HCL	TOC (Method 9060)

adspace Screening (Circle one)

Yes

No

Reading:

0 ppm

D/FID type: _____

Comments: _____

Samplers: J Adams / J Schwartz

Signatures: J Adams

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GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: Solutia Queeny RFI (DATA GAP) PROJECT NUMBER: A3-20000058-C
DATE: 9/20/01
WEATHER: 50° F, 70's
ELD PERSONNEL: B. Billman, J. Adams
ITORING WELL ID: VW-1

INITIAL DATA

Well Diameter 2 in. Gallons/Lin. Ft.¹: 0.163 Ambient PID/FID Reading: 0 ppm
Total Depth of Well: 16.15 ft Vol. of Water Column: 1.0 gallons Wellbore PID/FID Reading: 0 ppm
Depth to Water: 9.91 ft Min. Purge Volume: -3 gallons (3 volumes) LNAPL / DNAPL - ft
Height of water Column: 6.24 ft Depth to Top of Screen - ft.

¹ 0.163 gallons/ft for 2-inch well, 0.653 gallons/ft for 4-inch well.

PURGE DATA

Purge Method: *Disposable bailes*

Start Time: 1405 Purge Stop Time: 1450 Elapsed Time: 15 Mins. Total Volume Purged ~ 5 Gals.

Average Purge Rate (gallons/min): 1/3 Well Volumes Purged: 4.5

Water Quality Meter ID: 100-000000 Calibrated on: 9/20/2011

SAMPLING DATA

Sampling method:

Sample Date: 9/23/01

Sample Time: 14:30

Analysis: VOC

COMMENTS:

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URS CORPORATION
GROUNDWATER SAMPLE COLLECTION FIELD SHEET

Site Name: Solutia Queeny RFI Project No: 23-20000058.00
 Sample ID: VW-1 Well Location: Fr. Built Chem Storage Area
 Date/Time Collected: 9/20/01 1430 Depth to water (from top of casing): 97.1 ft above ground
 Sampling Method: Drill Suction ~~Soil Sampler~~

Sample Split? (Circle one) Yes No
 Duplicate Sample (Circle one) Yes No Duplicate ID: _____
 Matrix Spike/Matrix Spike Duplicate (Circle one) Yes No MS/MSD ID: _____

Sample Collected	Sample Container	Preservative	Analysis Required
	(3) 40ml VOA	HCL	VOCs (Method 8260)
	(2) 1-L amber		SVOCs (Method 8270)
	(2) 1-L amber		Pesticides (Method 8141)
	(2) 1-L amber		PCBs (Method 8082)
	(1) 250 ml polyethylene (for filtered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene (for unfiltered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene	NAOH	Cyanide (Method 9012)
	(1) 250 ml polyethylene		Alkalinity, CL, SO ₄ , NO ₃ (Method 310.1, 300.0)
	(1) 500 ml polyethylene	Zinc acetate	Sulfide (Method 9034)
	(1) 250 ml polyethylene (filtered)		Fe(II) (ASTM 3500)
	(3) 40ml VOA		Methane/Ethane/Ethene
	(1) 125 ml amber	HCL	TOC (Method 9060)

Airspace Screening (Circle one) Yes No Reading: _____

D/FID type: _____

Comments: _____

Samplers: B. Bunn / J. Adams

Natures: J. Adams

URS CORPORATION
GROUNDWATER SAMPLE COLLECTION FIELD SHEET

S : Name: Solutia Queeny RFI

Project No: 23-20000058.00

Sample ID: VW-3

Well Location: Bolt Chem

D : Time Collected: 9/21/01 1245

Depth to water (from top of casing): _____

Sampling Method: D.5203 Sub B

5

Sample Split? (Circle one)

Yes No

Duplicate Sample (Circle one)

Yes No

Duplicate ID: _____

Matrix Spike/Matrix Spike Duplicate (Circle one)

Yes No

MS/MSD ID: _____

Sample Collected	Sample Container	Preservative	Analysis Required
X	(3) 40ml VOA	HCL	VOCs (Method 8260)
	(2) 1-L amber		SVOCs (Method 8270)
	(2) 1-L amber		Pesticides (Method 8141)
	(2) 1-L amber		PCBs (Method 8082)
	(1) 250 ml polyethylene (for filtered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene (for unfiltered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene	NAOH	Cyanide (Method 9012)
	(1) 250 ml polyethylene		Alkalinity, CL, SO ₄ , NO ₃ (Method 310.1, 300.0)
	(1) 500 ml polyethylene	Zinc acetate	Sulfide (Method 9034)
	(1) 250 ml polyethylene (filtered)		Fe(II) (ASTM 3500)
	(3) 40ml VOA		Methane/Ethane/Ethene
	(1) 125 ml amber	HCL	TOC (Method 9060)

Leave space Screening (Circle one) Yes No Reading: _____

ID ID type: _____

Comments: _____

mers: J. Schmitt / J. Adams

Signatures: J. Adams

URS

GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: Solutia Queeny BFI (DATA GAP) PROJECT NUMBER: 23-20000058
DATE: 9/20/01
WEATHER: Sunny, 70°
FIELD PERSONNEL: B.Billman, J.Adams
MONITORING WELL ID: 1101-2B

INITIAL DATA

Well Diameter _____ in. Gallons/Lin. Ft.¹: 0.653. Ambient PID/FID Reading: (S) ppm
 Total Depth of Well: 76.81 ft Vol. of Water Column: 26.2 gallons Wellbore PID/FID Reading: 0 ppm
 Depth to Water: 36.72 ft Min. Purge Volume: ~79 gallons (3 volumes) LNAPL / DNAPL No n. ft
 Height of water Column: 40.109 ft Depth to Top of Screen _____ ft.

¹ 0.163 gallons/ft for 2-inch well, 0.653 gallons/ft for 4-inch well

¹ 0.163 gallons/ft for 2-inch well, 0.653 gallons/ft for 4-inch well.

PURGE DATA

Purge Method: whole pump

Start Time: 1345 Purge Stop Time: 1500 Elapsed Time: 75 Mins.
Average Purge Rate (gallons/min): 3.1 Well Volume(s) Purged: 2 Total Volume Purged 6.30 Gals.

Water Quality Meter ID: 1201 (Hr. m) Well Volumes Purged: 3
Calibrated on: 9/20/11

SAMPLING DATA

Sampling method: Desirable Scales

Sample Date: 9/20/01

Sample Time: 15/36

Analysis: NCS

COMMENTS:

Collect MS & MSD also

Analysis: NCS

COMMENTS: *see back*

Dvlatform

URS CORPORATION
GROUNDWATER SAMPLE COLLECTION FIELD SHEET

Site Name: Solutia Queeny RFI

Sample ID: VW-2B

Date/Time Collected: 9/1/2010 1500

Sampling Method: Drillhole Pump Test

Project No: 23-20000058.00

Well Location: Fox River Beach Area

Depth to water (from top of casing): _____

Sample Split? (Circle one)

Yes No

Duplicate Sample (Circle one)

Yes No

Matrix Spike/Matrix Spike Duplicate (Circle one)

Yes No

Duplicate ID: _____

MS/MSD ID: VW-2B M3/M3C

Sample Collected	Sample Container	Preservative	Analysis Required
	(3) 40ml VOA	HCL	VOCs (Method 8260)
	(2) 1-L amber		SVOCs (Method 8270)
	(2) 1-L amber		Pesticides (Method 8141)
	(1) 250 ml polyethylene (for filtered metals)		PCBs (Method 8082)
	(1) 250 ml polyethylene (for unfiltered metals)	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene	HNO ₃	Metals/Mercury (Method 6010 / 7470)
	(1) 250 ml polyethylene	NAOH	Cyanide (Method 9012)
	(1) 500 ml polyethylene	Zinc acetate	Alkalinity, CL, SO ₄ , NO ₃ (Method 310.1, 300.0)
	(1) 250 ml polyethylene (filtered)		Sulfide (Method 9034)
	(3) 40ml VOA		Fe(II) (ASTM 3500)
	(1) 125 ml amber	HCL	Methane/Ethane/Ethene
			TOC (Method 9060)

Space Screening (Circle one)

Yes

No

Reading: _____

D/I D type: _____

Comments: _____

Signatures: B. Bulman / J. Adams

J. Adams

APPENDIX B

Investigation Derived Waste Analytical Results

URS

Client Sample ID: BATCH-8

GC Semivolatiles

Lot-Sample #....: F1K080254-001 Work Order #....: ENKPN1AJ Matrix.....: WATER
 Date Sampled....: 11/07/01 16:00 Date Received...: 11/08/01
 Prep Date.....: 11/14/01 Analysis Date...: 11/19/01
 Prep Batch #....: 1318457 Analysis Time...: 13:36
 Dilution Factor: 10

Method.....: CFR136A 608

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	
Aroclor 1016	ND	10	ug/L
Aroclor 1221	ND	10	ug/L
Aroclor 1232	ND	10	ug/L
Aroclor 1242	ND	10	ug/L
Aroclor 1248	ND	10	ug/L
Aroclor 1254	ND	10	ug/L
Aroclor 1260	ND	10	ug/L
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>LIMITS</u>
Tetrachloro-m-xylene	0.0 DIL	(22 - 142)	
Decachlorobiphenyl	0.0 DIL	(10 - 162)	

NOTE(S) :

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

URS

Client Sample ID: BATCH-8

GC/MS Volatiles

Lot-Sample #....: F1K080254-001 Work Order #....: ENKPN1AC Matrix.....: WATER
 Date Sampled....: 11/07/01 16:00 Date Received...: 11/08/01
 Prep Date.....: 11/15/01 Analysis Date...: 11/16/01
 Prep Batch #....: 1320122 Analysis Time...: 05:03
 Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	20	ug/L
Benzene	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
2-Butanone	ND	20	ug/L
Carbon disulfide	ND	5.0	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorobenzene	26	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	10	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	2.5	ug/L
trans-1,2-Dichloroethene	ND	2.5	ug/L
Ethylbenzene	ND	5.0	ug/L
Ethyl methacrylate	ND	10	ug/L
Iodomethane	ND	5.0	ug/L
Methylene chloride	0.91 J,B	5.0	ug/L
4-Methyl-2-pentanone	ND	20	ug/L
Tetrachloroethene	6600 E	5.0	ug/L
Toluene	1.2 J,B	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
Trichloroethene	3.4 J	5.0	ug/L
Vinyl chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	87	(60 - 119)
Toluene-d8	114	(79 - 117)
Dibromofluoromethane	108	(75 - 127)
1,2-Dichloroethane-d4	111	(71 - 133)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

E Estimated result. Result concentration exceeds the calibration range.

URS

Client Sample ID: BATCH-8

General Chemistry

Lot-Sample #....: F1K080254-001 Work Order #....: ENKPN Matrix.....: WATER
Date Sampled....: 11/07/01 16:00 Date Received...: 11/08/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u>	<u>PREP</u>
	ND	5.0	ug/L	SW846 9012	<u>ANALYSIS DATE</u>	<u>BATCH #</u>
Amenable Cyanide				Dilution Factor: 1	11/16/01	1320482
				Analysis Time...: 00:00		

URS

Client Sample ID: BATCH-8

TOTAL Metals

Lot-Sample #....: F1K080254-001

Matrix.....: WATER

Date Sampled...: 11/07/01 16:00 Date Received...: 11/08/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....:	1319489					
Arsenic	13.8	10.0	ug/L	MCAWW 200.7	11/15-11/18/01	ENKPN1AD
		Dilution Factor: 1		Analysis Time...: 18:56		
Barium	70.4 B	200	ug/L	MCAWW 200.7	11/15-11/18/01	ENKPN1AF
		Dilution Factor: 1		Analysis Time...: 18:56		
Copper	10 B	25.0	ug/L	MCAWW 200.7	11/15-11/19/01	ENKPN1AG
		Dilution Factor: 1		Analysis Time...: 13:30		
Lead	ND	3.0	ug/L	MCAWW 200.7	11/15-11/18/01	ENKPN1AE
		Dilution Factor: 1		Analysis Time...: 18:56		
Zinc	208	20.0	ug/L	MCAWW 200.7	11/15-11/18/01	ENKPN1AH
		Dilution Factor: 1		Analysis Time...: 18:56		

NOTE(S) :

B Estimated result. Result is less than RL.

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Mr. Ron Martino
STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

LOG NO: T1-33438
Received: 09 NOV 01
Reported: 19 NOV 01

Project: Solutia Queen-1
Sampled By: Client
Code: 161011121
Page 1

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
33438-1	Batch 8	11-07-01/16:00
PARAMETER		33438-1
Organophosphorus Pesticides (8141)		
Alachlor, ug/l	390	
Surrogate - Triphenylphosphate	71	%
Dilution Factor	100	
Prep Date	11.13.01	
Analysis Date	11.16.01	
Batch ID	1113B	

APPENDIX C

Groundwater Analytical Data (Laboratory Sheets)

ORGANIC DATA ASSESSMENT

PROJECT NO. 100-00052-0
 LABORATORY Environmental
 LAB PROJECT NO. 100-00052
 NO. OF SAMPLES/
 MATRIX 20 samples

SITE San Francisco
 REVIEWER Woodward-Clyde Consultants
 REVIEWER'S NAME J. L. G.
 COMPLETION DATE 1/15/84

DATA ASSESSMENT WORKSHEET

	Meth # 8260	Meth #	Meth #	Meth #	Meth #
1. HOLDING TIMES	✓	—	—	—	—
2. BLANKS	✓	—	—	—	—
3. SURROGATES	✓	—	—	—	—
4. SCS (LCS)	✓	—	—	—	—
5. DCS	NA	—	—	—	—
6. MATRIX SPIKE/DUP	✓	—	—	—	—
7. DILUTION	(1)	—	—	—	—
8. OVERALL ASSESSMENT	O	—	—	—	—

O = Data had no problems/or qualified due to minor problems.

M = Data qualified due to major problems.

Z = Data unacceptable.

X = Problems, but do not affect data.

ACTION ITEMS:

COMMENTS: (1) Samples VW-2B, VW-2BMS, VW-2BMSD, MW-24B DUP, MW-24A, VW-1, MW-24B, VW-2 and MW-25S were diluted by 2 to 1,250 times; however no action is necessary.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16193-1

Lab Name: STL SAVANNAH

Contract:

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: (soil/water) WATER

Lab Sample ID: MW-24B

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: P2836

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec.
GC Column: DB-624 ID: 0.18 (mm)

Date Analyzed: 09/25/01
Dilution Factor: 100.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3-----	CHLOROMETHANE	1000	U
75-01-4-----	VINYL CHLORIDE	50	U
75-09-2-----	METHYLENE CHLORIDE	500	U
67-66-3-----	CHLOROFORM	500	U
71-55-6-----	1 1 1-TRICHLOROETHANE	500	U
56-23-5-----	CARBON TETRACHLORIDE	500	U
71-43-2-----	BENZENE	7800	
107-06-2-----	1 2-DICHLOROETHANE	500	U
79-01-6-----	TRICHLOROETHENE	500	U
75-27-4-----	BROMODICHLOROMETHANE	500	U
108-88-3-----	TOLUENE	1200	
127-18-4-----	TETRACHLOROETHENE	500	U
124-48-1-----	DIBROMOCHLOROMETHANE	500	U
108-90-7-----	CHLOROBENZENE	82000	E 100000 D
100-41-4-----	ETHYL BENZENE	220	J
75-25-2-----	BROMOFORM	500	U
67-64-1-----	ACETONE	5000	U
74-88-4-----	IODOMETHANE	500	U
75-15-0-----	CARBON DISULFIDE	500	U
78-93-3-----	2-BUTANONE	2500	U
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)	2500	U
540-59-0-----	1,2-DICHLOROETHENE (total)	500	U
1330-20-7-----	XYLENE (total)	490	J
97-63-2-----	ETHYL METHACRYLATE	500	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: STL SAVANNAH

Contract:

16193-2

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: soil/water) WATER

Lab Sample ID: MW-24B DUP

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: P2856

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec.

Date Analyzed: 09/26/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1250.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L	Q
---------	----------	---	------	---

74-87-3-----	CHLOROMETHANE	12000	U	
75-01-4-----	VINYL CHLORIDE	620	U	
75-09-2-----	METHYLENE CHLORIDE	710	J	
67-66-3-----	CHLOROFORM	6200	U	
71-55-6-----	1 1 1-TRICHLOROETHANE	6200	U	
56-23-5-----	CARBON TETRACHLORIDE	6200	U	
71-43-2-----	BENZENE	8100		
107-06-2-----	1 2-DICHLOROETHANE	6200	U	
79-01-6-----	TRICHLOROETHENE	6200	U	
75-27-4-----	BROMODICHLOROMETHANE	6200	U	
108-88-3-----	TOLUENE	1900	J	
127-18-4-----	TETRACHLOROETHENE	6200	U	
124-48-1-----	DIBROMOCHLOROMETHANE	6200	U	
108-90-7-----	CHLOROBENZENE	160000		
100-41-4-----	ETHYL BENZENE	6200	U	
75-25-2-----	BROMOFORM	6200	U	
67-64-1-----	ACETONE	62000	U	
74-88-4-----	IODOMETHANE	6200	U	
75-15-0-----	CARBON DISULFIDE	6200	U	
78-93-3-----	2-BUTANONE	31000	U	
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)	31000	U	
540-59-0-----	1,2-DICHLOROETHENE (total)	6200	U	
1330-20-7-----	XYLENE (total)	12000	U	
97-63-2-----	ETHYL METHACRYLATE	6200	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16193-3

Lab Name: STL SAVANNAH

Contract:

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: (soil/water) WATER

Lab Sample ID: MW-24A

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: P2842

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec. _____
GC Column: DB-624 ID: 0.18 (mm)

Date Analyzed: 09/25/01

Dilution Factor: 125.0
Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3-----	CHLOROMETHANE	1200	U
75-01-4-----	VINYL CHLORIDE	62	U
75-09-2-----	METHYLENE CHLORIDE	620	U
67-66-3-----	CHLOROFORM	620	U
71-55-6-----	1 1 1-TRICHLOROETHANE	620	U
56-23-5-----	CARBON TETRACHLORIDE	620	U
71-43-2-----	BENZENE	18000	
107-06-2-----	1 2-DICHLOROETHANE	620	U
79-01-6-----	TRICHLOROETHENE	620	U
75-27-4-----	BROMODICHLOROMETHANE	620	U
108-88-3-----	TOLUENE	620	U
127-18-4-----	TETRACHLOROETHENE	620	U
124-48-1-----	DIBROMOCHLOROMETHANE	620	U
108-90-7-----	CHLOROBENZENE	17000	
100-41-4-----	ETHYL BENZENE	1400	
75-25-2-----	BROMOFORM	620	U
67-64-1-----	ACETONE	6200	U
74-88-4-----	IODOMETHANE	620	U
75-15-0-----	CARBON DISULFIDE	620	U
78-93-3-----	2-BUTANONE	3100	U
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)	3100	U
540-59-0-----	1,2-DICHLOROETHENE (total)	620	U
1330-20-7-----	XYLENE (total)	4500	
97-63-2-----	ETHYL METHACRYLATE	620	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16193-4

Lab Name: STL SAVANNAH

Contract:

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: (soil/water) WATER

Lab Sample ID: VW-1

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: P2838

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec. _____
GC Column: DB-624 ID: 0.18 (mm)

Date Analyzed: 09/25/01
Dilution Factor: 100.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3-----	CHLOROMETHANE	1000	U
75-01-4-----	VINYL CHLORIDE	50	U
75-09-2-----	METHYLENE CHLORIDE	500	U
67-66-3-----	CHLOROFORM	500	U
71-55-6-----	1 1 1-TRICHLOROETHANE	500	U
56-23-5-----	CARBON TETRACHLORIDE	500	U
71-43-2-----	BENZENE	16000	
107-06-2-----	1 2-DICHLOROETHANE	500	U
79-01-6-----	TRICHLOROETHENE	500	U
75-27-4-----	BROMODICHLOROMETHANE	500	U
108-88-3-----	TOLUENE	500	U
127-18-4-----	TETRACHLOROETHENE	500	U
124-48-1-----	DIBROMOCHLOROMETHANE	500	U
108-90-7-----	CHLOROBENZENE	3400	
100-41-4-----	ETHYL BENZENE	500	U
75-25-2-----	BROMOFORM	500	U
67-64-1-----	ACETONE	5000	U
74-88-4-----	IODOMETHANE	500	U
75-15-0-----	CARBON DISULFIDE	500	U
78-93-3-----	2-BUTANONE	2500	U
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)	2500	U
540-59-0-----	1,2-DICHLOROETHENE (total)	500	U
1330-20-7-----	XYLENE (total)	1000	U
97-63-2-----	ETHYL METHACRYLATE	500	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16193-5

Lab Name: STL SAVANNAH

Contract:

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: (soil/water) WATER

Lab Sample ID: VW-2B

Sample wt /vol: 5.00 (g/mL) ML

Lab File ID: P2847

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec. _____

Date Analyzed: 09/26/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3-----	CHLOROMETHANE	4.5	J
75-01-4-----	VINYL CHLORIDE	34	
75-09-2-----	METHYLENE CHLORIDE	5.0	U
67-66-3-----	CHLOROFORM	5.0	U
71-55-6-----	1 1 1-TRICHLOROETHANE	5.0	U
56-23-5-----	CARBON TETRACHLORIDE	5.0	U
71-43-2-----	BENZENE	2.8	J
107-06-2-----	1 2-DICHLOROETHANE	5.0	U
79-01-6-----	TRICHLOROETHENE	5.0	U
75-27-4-----	BROMODICHLOROMETHANE	5.0	U
108-88-3-----	TOLUENE	1.4	J
127-18-4-----	TETRACHLOROETHENE	5.0	U
124-48-1-----	DIBROMOCHLOROMETHANE	5.0	U
108-90-7-----	CHLOROBENZENE	170	
100-41-4-----	ETHYL BENZENE	5.0	U
75-25-2-----	BROMOFORM	5.0	U
67-64-1-----	ACETONE	50	U
74-88-4-----	IODOMETHANE	5.0	U
75-15-0-----	CARBON DISULFIDE	5.0	U
78-93-3-----	2-BUTANONE	25	U
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)	25	U
540-59-0-----	1,2-DICHLOROETHENE (total)	230	
1330-20-7-----	XYLENE (total)	10	U
97-63-2-----	ETHYL METHACRYLATE	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16193-6

Lab Name: STL SAVANNAH

Contract:

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: (soil/water) WATER

Lab Sample ID: VW-2

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: P2839

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec. _____
GC Column: DB-624 ID: 0.18 (mm)

Date Analyzed: 09/25/01

Soil Extract Volume: _____ (uL)

Dilution Factor: 4.0

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3-----	CHLOROMETHANE	40	U
75-01-4-----	VINYL CHLORIDE	2.0	U
75-09-2-----	METHYLENE CHLORIDE	20	U
67-66-3-----	CHLOROFORM	20	U
71-55-6-----	1 1 1-TRICHLOROETHANE	20	U
56-23-5-----	CARBON TETRACHLORIDE	20	U
71-43-2-----	BENZENE	100	
107-06-2-----	1 2-DICHLOROETHANE	20	U
79-01-6-----	TRICHLOROETHENE	20	U
75-27-4-----	BROMODICHLOROMETHANE	20	U
108-88-3-----	TOLUENE	20	U
127-18-4-----	TETRACHLOROETHENE	20	U
124-48-1-----	DIBROMOCHLOROMETHANE	20	U
108-90-7-----	CHLOROBENZENE	960	E 920 D
100-41-4-----	ETHYL BENZENE	20	U
75-25-2-----	BROMOFORM	20	U
67-64-1-----	ACETONE	200	U
74-88-4-----	IODOMETHANE	20	U
75-15-0-----	CARBON DISULFIDE	20	U
78-93-3-----	2-BUTANONE	100	U
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)	100	U
540-59-0-----	1,2-DICHLOROETHENE (total)	20	U
1330-20-7-----	XYLENE (total)	40	U
97-63-2-----	ETHYL METHACRYLATE	20	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16193-7

Lab Name: STL SAVANNAH

Contract:

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: soil/water) WATER

Lab Sample ID: MW-25B

Sample wt /vol: 5.00 (g/mL) ML

Lab File ID: P2848

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec. _____

Date Analyzed: 09/26/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3-----	CHLOROMETHANE	10	U
75-01-4-----	VINYL CHLORIDE	12	
75-09-2-----	METHYLENE CHLORIDE	5.0	U
67-66-3-----	CHLOROFORM	5.0	U
71-55-6-----	1 1 1-TRICHLOROETHANE	5.0	U
56-23-5-----	CARBON TETRACHLORIDE	5.0	U
71-43-2-----	BENZENE	35	
107-06-2-----	1 2-DICHLOROETHANE	5.0	U
79-01-6-----	TRICHLOROETHENE	5.0	U
75-27-4-----	BROMODICHLOROMETHANE	5.0	U
108-88-3-----	TOLUENE	1.6	J
127-18-4-----	TETRACHLOROETHENE	5.0	U
124-48-1-----	DIBROMOCHLOROMETHANE	5.0	U
108-90-7-----	CHLOROBENZENE	250	E 240 D
100-41-4-----	ETHYL BENZENE	9.4	
75-25-2-----	BROMOFORM	5.0	U
67-64-1-----	ACETONE	13	J
74-88-4-----	IODOMETHANE	5.0	U
75-15-0-----	CARBON DISULFIDE	5.0	U
78-93-3-----	2-BUTANONE	25	U
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)	25	U
540-59-0-----	1,2-DICHLOROETHENE (total)	20	
1330-20-7-----	XYLENE (total)	10	U
97-63-2-----	ETHYL METHACRYLATE	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16193-8

Lab Name: STL SAVANNAH

Contract:

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: soil/water) WATER

Lab Sample ID: MW-25A

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: P2844

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec. _____
GC Column: DB-624 ID: 0.18 (mm)

Date Analyzed: 09/26/01

Soil Extract Volume: _____ (uL)

Dilution Factor: 25.0

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3-----	CHLOROMETHANE	250	U
75-01-4-----	VINYL CHLORIDE	12	U
75-09-2-----	METHYLENE CHLORIDE	120	U
67-66-3-----	CHLOROFORM	120	U
71-55-6-----	1 1 1-TRICHLOROETHANE	120	U
56-23-5-----	CARBON TETRACHLORIDE	120	U
71-43-2-----	BENZENE	300	_____
107-06-2-----	1 2-DICHLOROETHANE	120	U
79-01-6-----	TRICHLOROETHENE	120	U
75-27-4-----	BROMODICHLOROMETHANE	120	U
108-88-3-----	TOLUENE	30	J
127-18-4-----	TETRACHLOROETHENE	120	U
124-48-1-----	DIBROMOCHLOROMETHANE	120	U
108-90-7-----	CHLOROBENZENE	3400	_____
100-41-4-----	ETHYL BENZENE	25	J
75-25-2-----	BROMOFORM	120	U
67-64-1-----	ACETONE	1200	U
74-88-4-----	IODOMETHANE	120	U
75-15-0-----	CARBON DISULFIDE	120	U
78-93-3-----	2-BUTANONE	620	U
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)	620	U
540-59-0-----	1, 2-DICHLOROETHENE (total)	120	U
1330-20-7-----	XYLENE (total)	66	J
97-63-2-----	ETHYL METHACRYLATE	120	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: STL SAVANNAH

Contract:

16193-9

Lab Code: SL

Case No.:

SAS No.:

SDG No.: QUE009

Matrix: (soil/water) WATER

Lab Sample ID: TB-136C

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: P2852

Level: (low/med) LOW

Date Received: 09/22/01

% Moisture: not dec.

Date Analyzed: 09/26/01

GC Column: DB-624 ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L	Q
74-87-3-----	CHLOROMETHANE		10	U
75-01-4-----	VINYL CHLORIDE		0.50	U
75-09-2-----	METHYLENE CHLORIDE		5.0	U
67-66-3-----	CHLOROFORM		5.0	U
71-55-6-----	1 1 1-TRICHLOROETHANE		5.0	U
56-23-5-----	CARBON TETRACHLORIDE		5.0	U
71-43-2-----	BENZENE		5.0	U
107-06-2-----	1 2-DICHLOROETHANE		5.0	U
79-01-6-----	TRICHLOROETHENE		5.0	U
75-27-4-----	BROMODICHLOROMETHANE		5.0	U
108-88-3-----	TOLUENE		5.0	U
127-18-4-----	TETRACHLOROETHENE		5.0	U
124-48-1-----	DIBROMOCHLOROMETHANE		5.0	U
108-90-7-----	CHLOROBENZENE		5.0	U
100-41-4-----	ETHYL BENZENE		5.0	U
75-25-2-----	BROMOFORM		5.0	U
67-64-1-----	ACETONE		50	U
74-88-4-----	IODOMETHANE		5.0	U
75-15-0-----	CARBON DISULFIDE		5.0	U
78-93-3-----	2-BUTANONE		25	U
108-10-1-----	4-METHYL-2-PENTANONE (MIBK)		25	U
540-59-0-----	1,2-DICHLOROETHENE (total)		5.0	U
1330-20-7-----	XYLENE (total)		10	U
97-63-2-----	ETHYL METHACRYLATE		5.0	U

CHAIN OF CUSTODY RECORDSHEET 1 of 1

URS CORPORATION

2318 MILLPARK DR.

MARYLAND HEIGHTS, MISSOURI 63043

314-429-0100

PROJECT NO:		PROJECT NAME:	NO. OF CONTAINERS	CONTAINER DESCRIPTION / ANALYSES REQUESTED		REMARKS
DATE	TIME	SAMPLE I.D. NUMBER		VOCs (826)		
9/20/01	1140	MW-24B	3	X		HCl
9/20/01	1140	MW-24B Dup	3	X		HCl
9/20/01	1200	MW-24A	3	X		HCl
9/20/01	1430	VW-1	3	X		HCl
9/20/01	1500	VW-2B	3	X		HCl
9/20/01	1500	VW-2B MS	3	X		HCl
9/20/01	1500	VW-2B MSD	3	X		HCl
9/21/01	1245	VW-2	3	X		HCl
9/21/01	1415	MW-25B	3	X		HCl
9/21/01	1645	MW-25A	3	X		HCl
RELINQUISHED BY: (Signature)		DATE / TIME	RECEIVED BY: (Signature)			DATE / TIME
<u>Jeff Adams</u>		9/21/01 1800				
RELINQUISHED BY: (Signature)		DATE / TIME	RECEIVED AT LAB BY: (Signature)			DATE / TIME
METHOD OF SHIPMENT:			AIRBILL NO:			
<u>FRA Ex</u>			<u>90702791045452</u>			

CHAIN OF CUSTODY RECEIPTSHEET 1 of 1

URS CORPORATION
2318 MILLPARK DR.
MARYLAND HEIGHTS, MISSOURI 63043
314-429-0100

PROJECT NO:	PROJECT NAME:	NO. OF CONTAINERS	CONTAINER DESCRIPTION / ANALYSES REQUESTED		REMARKS
23-2000058.00	Solutia - Ullery		VOCs (2)		
SAMPLER'S: (Signature)		<i>Jennifer Schmidt</i>			
DATE	TIME	SAMPLE I.D. NUMBER			
4/21/01		TB-136C	Trip Blank *Send Results Attention of Amelia Turnell *Need 48-hour turn around		
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED BY: (Signature)		DATE / TIME	
<i>Jeff Adams</i>	4/21/01 1800				
RELINQUISHED BY: (Signature)	DATE / TIME	RECEIVED AT LAB BY: (Signature)		DATE / TIME	
METHOD OF SHIPMENT:	Fed EX	AIRBILL NO:		8262791085452	